CONTAINMENT SYSTEM FOR A DENDRITIC OBJECT

invented by

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TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to the field of covers for dendritic objects, such as plants. More specifically, the present invention relates to the field of storage, transport, and disposal covers for natural and artificial plants, specifically Christmas trees.

BACKGROUND OF THE INVENTION

[0002] The storage, transportation, and/or disposal of dendritic objects, such as natural or artificial plants (e.g., Christmas trees) and/or decorations made from natural or artificial plants (e.g., wreaths), often pose a problem unique to such dendritic objects.

[0003] With natural dendritic objects, transportation often poses a problem of contamination of the transporting vehicle. For example, a Christmas tree may be transported on the roof of a car. Sap and pitch from the Christmas tree may be deposited upon the roof of the car and damage the finish thereof.

[0004] Also, natural dendritic objects are often fragile and may suffer damage during transport. For example, a tree or shrub transported in an open truck may suffer wind damage when the truck is travelling at speed.

[0005] Many natural and artificial dendritic objects are excessively bulky. The transport, storage, or disposal of such bulky objects may require an excessive amount of volume. For example, a fresh Christmas tree may be cut in the wild. This tree would then need to be transported to the desired location. If the tree were of any size, it would typically be too bulky for easy transport. The volume of the tree must therefore be reduced. This may be done by furling the tree, i.e., by gathering the branches to the trunk. This furling process is itself awkward and messy. This is especially the case where the

persons doing the furling are not professionals, e.g., a family obtaining a once-a-year Christmas tree. Since dendritic objects tend to be fragile, e.g., the smaller branches may easily be broken. It is desirable that the method used to furl the tree not damage the tree.

[0006] In a related situation, dendritic objects furled for transport or storage must be unfurled prior to use. This unfurling process can also be awkward and messy. As is often the case with commercially cut Christmas trees, the tree is furled by a professional at the lot, typically be tying the branches up with twine. This pre-furled tree is then transported home by the purchaser and unfurled by simply cutting the twine. While this may seem a simple process, it can be awkward, destructive, and dangerous if not properly done.

[0007] Natural dendritic objects harvested in the wild, such as Christmas trees, are often infested with parasites and other vermin. It desirable that these vermin be destroyed prior to bringing the object into a home or other place where live vermin would pose esthetic and health problems.

[0008] Artificial dendritic objects are often stored for long periods of time in out-of-the-way places (e.g., an artificial Christmas tree may be stored in a garage or attic for nearly a year) serve as nesting places for spiders, silverfish, mice, and other undesirable pests and/or vermin. It is desirable that a curtailment of such nesting places during storage.

[0009] Natural dendritic objects used for temporary or limited purposes are typically harvested objects. The harvesting process kills the object. These dead objects tend to dry out during use. This is especially true of Christmas trees, wreaths, etc. Such objects must be disposed of after use. The dead objects are often brittle and prone to shed needles, twigs, and/or other foliage. This makes transport and disposal of such objects awkward and messy. Enshrouding the dead objects prior to

transport and disposal adds its own handling problems and may add significantly to the cost of disposal.

[0010] There are numerous devices in the prior art designed to address combinations of the problems discussed hereinbefore. None of the prior art devices addresses all of these problems in a cost-effective and easily produced manner.

SUMMARY OF THE INVENTION

[0011] Accordingly, it is an advantage of the present invention that a containment system for a dendritic object is provided.

[0012] It is another advantage of the present invention that a containment system is provided that protects a transport vehicle from contamination by a dendritic object.

[0013] It is another advantage of the present invention that a containment system is provided that protects a dendritic object during transport.

[0014] It is another advantage of the present invention that a containment system is provided that aids in the furling of a dendritic object without damage.

[0015] It is another advantage of the present invention that a containment system is provided that aids in the unfurling of a dendritic object without damage.

[0016] It is another advantage of the present invention that a containment system is provided that allows the ready destruction of parasites and other vermin.

[0017] It is another advantage of the present invention that a containment system is provided that allows easy and inexpensive disposal of a dendritic object.

[0018] The above and other advantages of the present invention are carried out in one form by a containment system for a dendritic object. This system incorporates a substantially cylindrical containment tube formed of a flexible material and configured to enshroud the dendritic object, a first closure

device coupled to the containment tube proximate a first end thereof and configured to releasably constrict the containment tube at the first end, and a second closure device coupled to the containment tube proximate a second end thereof and configured to releasably constrict the containment tube at the second end.

[0019] The above and other advantages of the present invention are carried out in another form by a containment system for a dendritic object. The system incorporates a containment tube configured to enshroud the dendritic object, formed of a flexible material, and having a tube end. The system also incorporates an end piece proximate the tube end, and a closure device coupled to the end piece or the containment tube proximate the tube end and configured to substantially close the tube end.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] A more complete understanding of the present invention may be derived by referring to the detailed description and claims when considered in connection with the Figures, wherein like reference numbers refer to similar items throughout the Figures, and:

[0021] FIG. 1 shows an oblique view of a containment system for a dendritic object in accordance with a preferred embodiment of the present invention;

[0022] FIG. 2 shows an oblique view of a containment system enshrouding a dendritic object in accordance with a preferred embodiment of the present invention;

[0023] FIG. 3 shows an oblique view of an end of a containment system with an open tube end and with drawstrings as closure devices in accordance with a preferred embodiment of the present invention;

[0024] FIG. 4 shows an oblique view of an end of the containment system of FIG. 3 with a closed tube end in accordance with a preferred embodiment of the present invention;

[0025] FIG. 5 shows an oblique view of an end of a containment system enshrouding a dendritic object with an open tube end and with a non-dendritic portion of the dendritic object protruding from the tube end in accordance with an preferred embodiment of the present invention;

[0026] FIG. 6 shows an oblique view of an end the containment system of FIG. 5 with a closed tube end in accordance with a preferred embodiment of the present invention;

[0027] FIG. 7 shows an oblique view of an end of a containment system with an open tube end and with drawstrings as closure devices in conjunction with an end piece in accordance with a preferred embodiment of the present invention;

[0028] FIG. 8 shows an oblique view of an end of the containment system of FIG. 7 with a closed tube end in conjunction with an end piece in accordance with a preferred embodiment of the present invention;

[0029] FIG. 9 shows an oblique view of an end of a containment system with an open tube end and with a zipper as a closure device in accordance with a preferred embodiment of the present invention;

[0030] FIG. 10 shows an oblique view of an end of the containment system of FIG. 9 with a closed tube end in accordance with a preferred embodiment of the present invention;

[0031] FIG. 11 shows an oblique view of an end of a containment system with an open tube end and with a zipper as a closure device in conjunction with an end piece in accordance with a preferred embodiment of the present invention;

[0032] FIG. 12 shows an oblique view of an end of the containment system of FIG. 11 with a closed tube end in accordance with a preferred embodiment of the present invention;

[0033] FIG. 13 shows an oblique view of an end of a containment system with an open tube end and with a hook-and-loop fastener as a closure device in conjunction with end piece in

accordance with a preferred embodiment of the present invention; and

[0034] FIG. 14 shows an oblique view of an end of the containment system of FIG. 13 with a closed tube end in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0035] FIG. 1 shows an oblique view of a containment system 20 for a dendritic object, and FIG. 2 shows an oblique view of containment system 20 enshrouding a dendritic object 22 in accordance with a preferred embodiment of the present invention.

[0036] Containment system 20 is intended to enshroud and thereby contain dendritic object 22 for transport, storage, and/or disposal. Dendritic object 22 may be arboriform (e.g., a Christmas tree) and have a dendritic portion 24 (e.g., branches 26) and a non-dendritic portion 28 (e.g., a trunk 30), or may have an arboriform element (e.g., a wreath). Typical dendritic objects 22 may be natural or artificial trees, shrubs, bushes, vines, wreaths, sprays, bouquets, flowers, or other plants or plant-like objects.

[0037] Containment system 20 is made up of a containment tube 32 formed of a flexible material and configured to contain and enshroud dendritic object 22. Containment tube 32 has two opposing tube ends 34, with each tube end 34 having a closure device 36. When containment system 20 is not in use, tube ends 34 are normally open. When containment system 20 enshrouds enshrouding dendritic object 22, tube ends 34 are normally closed to complete the enshroudment. Closure devices 36 are used to effect the closure of tube ends 34.

[0038] Desirably, both closure devices 36 are substantially identical. This is exemplified in FIGs. 1 and 2, and is extended by analogy to the remaining Figures (discussed hereinafter). However, this is not a requirement of the present

invention. Those skilled in the art will appreciate that each closure device 36 may differ as required to suit specific intended uses for containment system 20.

[0039] Containment tube 32 is substantially a sheet 38 formed of a flexible material 40. Depending upon the specific use for which containment system 20 is intended, sheet 38 may be more or less durable. For example, if containment system 20 is intended for repetitive use to store dendritic object 22 (e.g., an artificial Christmas tree), then sheet 38 may be canvas or other strong fabric or thick polymeric film. On the other hand, if containment system 20 is intended for a one-time use for disposal of dendritic object 22 (e.g., a dead Christmas tree), then sheet 38 may be thin polymeric film or paper.

[0040] In one preferred embodiment, containment system 20 would be intended for two-time use where dendritic object 22 is a natural Christmas tree. In a first use, system 20 would be used before Christmas for the transport of the tree from a lot or cutting place to a home. In a second use, system 20 would be used for the transport of the same tree from the home to a disposal site, and for the disposal of the tree thereat. For such two-time use, sheet 38 would desirably be formed of coated paper, i.e., paper coated with a thin film of plastic or other material. Such coated paper is substantially moisture resistant, relatively durable, and inexpensive. By being moisture resistant the coated-paper containment system 20 is capable of protecting the transport vehicle from contamination by sap or pitch from the "live" tree during the first use. By being relatively durable, containment system 20 is able to withstand handling, aid in the furling and unfurling of the tree (discussed hereinafter), and resist tears by branches 26 of the tree, thereby confining the debris of the "dead" tree during the second use. By being inexpensive as well as practical, containment system 20 warrants such a casual use by an average homeowner.

[0041] In a preferred embodiment, containment tube 32 is a substantially cylindrical tube having a tube diameter 42. This shape allows for easy enshroudment of a typical dendritic object 22, such as a tree. Those skilled in the art will recognize that the shape of containment tube is not a requirement of the present invention. Shapes other than cylindrical may be utilized to meet special circumstances without departing from the spirit of the present invention.

[0042] A typical dendritic object 22 (e.g., the tree depicted in FIG. 2) has trunk 30 and branches 26. When dendritic object 22 is spread out and bushy (i.e., unfurled), it is difficult to handle and transport. By furling dendritic object 22 (i.e., by gathering branches 26 together about trunk 30), dendritic object 22 is made more compact. This renders dendritic object 22 more easily handled and less prone to damage.

[0043] Ideally, tube diameter 42 is smaller than an object diameter 44 (i.e., a "diameter" of dendritic object 22) when dendritic object is unfurled. This will allow containment system 20 to be used to furl dendritic object 22. One end of a typical dendritic object 22 is a base 46, where branches 26 naturally tend to deflect away from base 46 towards trunk 30. By inserting base 46 into a tube end 34 of containment system 20, then pulling containment system 20 over branches 26, branches 26 are deflected upwards towards trunk 30. This action furls dendritic object 22 into the desired more compact shape. Since this action has placed dendritic object 22 inside containment tube 32, containment tube 32 enshrouds dendritic object 22. This enshroudment is completed by closing tube ends 34 (discussed hereinafter).

[0044] Those skilled in the art will appreciate that it is not a requirement of the present invention that tube diameter 42 be less than object diameter 44. In some preferred embodiments, it may be desired that containment tube 32 fit loosely over dendritic object 22. This is especially true where dendritic

object 22 cannot be furled without a significant risk of damage. It will be appreciated, therefore, that containment system 20 may be formed with any desired tube diameter 42 without departing from the spirit of the present invention.

[0045] FIGs. 3 and 4 show oblique views of an end of containment system 20, with open and closed tube ends 34, respectively, and with drawstrings 48 as closure devices 36, in accordance with a preferred embodiment of the present invention. The following discussion refers to FIGs. 1, 2, 3, and 4.

[0046] Closure device 36 may be a simple drawstring 48. In this preferred embodiment, flexible material 40 of containment tube 32 is folded over and seamed to form a hem 50 substantially around a circumference of containment tube 32 at tube end 34. Proximate openings 52 are formed into hem 50. This may be done by forming a slit, or a pair of proximate slits, in flexible material 40 within hem 50. Drawstring 48 enters hem 50 through first opening 52, passes around a portion of circumference 54 within hem 50, and exits hem 50 through second opening 52.

[0047] Drawstring 48 may formed as a cord, a ribbon, a wire, or another string-like device, and may be formed of a fabric, a plastic, a metal, or another material, as desired. It will be appreciated by those skilled in the art that the use of a particular device and/or material for drawstring 48 does not depart from the spirit of the present invention.

[0048] Once dendritic object 22 is contained within containment tube 32, drawing drawstring 48 will constrict and substantially close tube end 34. Drawstring 48 may then be secured by a knot, a cinch, or any of a plurality of other devices well known to those skilled in the art.

[0049] By undoing the knot, cinch, or other restraining device, tube end 34 may be expanded for the non-destructive removal of dendritic object 22. Drawstring 48 therefore releasably constricts tube end 34. This allows containment system 20 to used a plurality of time, as desired.

[0050] FIGs. 5 and 6 show oblique views of an end of containment system 20 enshrouding dendritic object 22, with open and closed tube ends 34, respectively, and with non-dendritic portion 28 protruding from tube end 34, in accordance with an preferred embodiment of the present invention. The following discussion refers to FIGs. 1, 2, 5, and 6.

[0051] It may be desirable that containment system 20 not fully enshroud dendritic object 22. That is, it may be desirable that containment system 20 enshroud only a portion of dendritic object 22. This may be the case where dendritic object 22 is a Christmas tree having a substantial trunk 30 (as in FIGs. 5 and 6). This may also be desirable where dendritic object 22 is a living tree not suitable for furling. In such a case, it may be desirable to enshroud only the head or dendritic portion 24 of the tree (e.g., for shipment at speed, where the head may suffer damage if exposed).

[0052] The preferred embodiment of containment system 20 utilizing drawstrings 48 as closure devices 36 is also suitable for partial enshroudment of dendritic object 22. Containment tube 32 is placed over dendritic portion 24 of dendritic object 22 as disclosed hereinbefore, leaving non-dendritic portion 28 protruding.

[0053] At the tube end 34 not proximate non-dendritic portion 28, drawstring 48 is drawn to constrict and close tube end 34 as discussed hereinbefore. At the tube end 34 proximate non-dendritic portion 28, drawstring 48 is drawn to constrict tube end 34 and close tube end 34 about non-dendritic portion 28.

[0054] Those skilled in the art will appreciate that variations on the basic drawstring methodology discussed hereinbefore may be used to suit variant circumstances, sizes, and intended uses of containment system 20. For example, the variant depicted in FIGs. 1, 3, 4, 5, and 6 demonstrated two drawstrings 48, hence four openings arranged as substantially opposing pairs, at each tube end 34. This variation is desirable

for larger containment systems 20. The use of this and/or other variations does not depart from the spirit of the present invention.

[0055] FIGs. 7 and 8 show oblique views of an end of containment system 20, with open and closed tube ends 34, respectively, and with drawstrings 48 as closure devices 36 in conjunction with an end piece 56, in accordance with a preferred embodiment of the present invention. The following discussion refers to FIGs. 1, 2, 6, and 7.

[0056] Where dendritic object 22 is large, especially messy, and/or prone to poke through containment system 20 at either end, it is desirable that end piece 56 be incorporated into containment system 20. End piece 56 is configured to cover an end of dendritic object 22 when closure device 36 closes tube end 34, i.e., as depicted in FIGs. 7 and 8) before drawstring 48 constricts tube end 34.

[0057] End piece 56 may be loose, or (as demonstrated in FIG. 7) may be affixed to containment tube 32 proximate tube end 34. The use of either a loose or an affixed end piece 56 does not depart from the spirit of the present invention.

[0058] End piece 56 has a shape suitable for use at tube end 34. That is, if containment tube 32 is substantially cylindrical, then end piece 56 would desirably be substantially circular to most easily fit within tube end 34.

[0059] End piece 56 is also desirably smaller than tube end 34. Those skilled in the art will appreciate that the exact size of end piece 56 relative to tube end 34 is dependent upon the intended use of containment system 20 and the nature of dendritic object 22. The use of variant sizes for end piece 56 does not depart from the spirit of the present invention.

[0060] For most preferred embodiments of containment system 20, end piece 56 is desirably formed of a flexible material 58. Flexible material 58 for end piece 56 may be the same as flexible material 40 for containment tube 32. This is

not a requirement of the present invention, however, and end-piece 56 may be formed of a different flexible material 58 where desirable for the intended use of containment system 20 and the nature of dendritic object 22. For example, it may be desirable to form end piece 56 of a stronger flexible material 58 than containment tube 32 to reduce the chance of poke-through when dendritic object 22 has a substantially axial stiff center. The use of alternative flexible materials for end piece 56 does not depart from the spirit of the present invention.

[0061] For some preferred embodiments of containment system 20, it is desirable that end piece 56 be formed of a substantially inflexible material 60. This is especially useful where there is a desire to inhibit crushing of dendritic object 22. This is discussed in more detail hereinafter in conjunction with FIGs. 11 and 12.

[0062] In FIGs. 7 and 8, closure device 36 is shown as a drawstring 48. Once dendritic object 22 is contained within containment tube 32, end piece 56 is inserted or folded inward to cover the end of dendritic object 22. Drawstring 48 is then drawn to constrict tube end 34. This action entraps end piece 56 within containment tube 32 and, if formed of flexible material 58, wraps end piece 56 over the end of dendritic object 22. This substantially closes tube end 34. Drawstring 48 is secured as discussed hereinbefore.

[0063] FIGs. 9 and 10 show oblique views of an end of containment system 20, with open and closed tube ends 34, respectively, and with a zipper 62 as closure device 36, in accordance with a preferred embodiment of the present invention. The following discussion refers to FIGs. 1, 2, 9, and 10.

[0064] In an alternative preferred embodiment, closure device may be zipper 62 alone, i.e., with end piece 56 omitted. Zipper 62 is shown affixed to circumference 54 of tube end 34. From a beginning, a first portion 64 of zipper 62 progresses clockwise around circumference 54, and a second portion 64

progresses counterclockwise. When zipped, zipper 62 causes tube end 34 to constrict in a line, thereby closing tube end 34.

[0065] FIGs. 11 and 12 show oblique views of an end of containment system 20, with open and closed tube ends 34, respectively, and with zipper 62 as closure device 36 in conjunction with end piece 56, in accordance with a preferred embodiment of the present invention. The following discussion refers to FIGs. 1, 2, 11, and 12.

[0066] In another alternative preferred embodiment, closure device may be zipper 62 used in conjunction with end piece 56. Zipper 62 is shown affixed to both tube end 34 and end piece 56. A first portion 64 of zipper 62 progresses around circumference 54 of tube end 34. A second portion 64 of zipper 62 progresses around a circumference 66 of end piece 56. When zipped, zipper 62 causes tube end 34 to constrict in a line, thereby closing tube end 34.

[0067] Since first and second portions 64 of zipper 62 must be substantially equal for zipper 62 to work properly, end piece 56 is substantially the same size as tube end 34. Because of this, this preferred embodiment lends itself well for use in circumstances where it is desirable that end piece 56 be formed of substantially inflexible material 60. That is, this closure methodology closes end tube 34 without constriction, and is therefore suitable where there is a desire to avoid crushing dendritic object 22.

[0068] FIGs. 13 and 14 show oblique views of an end of containment system 20, with open and closed tube ends 34, respectively, and with a hook-and-loop fastener 68 as closure device 36 in conjunction with end piece 56, in accordance with a preferred embodiment of the present invention. The following discussion refers to FIGs. 1, 2, 13, and 14.

[0069] In another alternative preferred embodiment, closure device 36 is hook-and-loop fastener 68. Hook-and-loop fastener 68 is formed of two fastener portions 70 and 72, one of

which is a hook portion and the other of which is a loop portion. A hook portion and a loop portion are mutually mating to effect fastening.

[0070] As depicted, one fastener portion 70 is affixed to an outer surface 74 of containment tube 32 in each of four places substantially equally spaced around circumference 54. A mating fastener portion 72 is affixed to end piece 56 for each of the portions 70 affixed to containment tube 32.

[0071] Containment tube 32 can be constricted and closed by attaching the fastener portions 72 affixed to end piece 56 to the fastener portions 70 affixed to containment tube 32. Desirably, portions 72 are affixed to end piece 56 only proximate a center thereof. This allows for a sizable "edge," around end piece 56. This edge can be tucked into containment tube 32 during the constriction and closing thereof.

[0072] The following discussion refers to FIGs. 1 and 2.

[0073] In an alternative preferred embodiment, containment system 20 may be used to partially enshroud and isolate dendritic object 22. An example of such a use would be in a nursery where a plurality of dendritic objects 22 are in close proximity. One such dendritic object 22 may be isolated from proximate dendritic objects 22 to independently administer specialized treatment (e.g., misting, medicating, etc.), or to prevent the administration of a generalized treatment.

[0074] In this embodiment, dendritic object would be enclosed within containment tube 32, but closure devices 36 would not be used to close one or both tube ends 34. Therefore, closure devices 36 may be eliminated from containment system 20 at one or both tube ends 34. Those skilled in the art will appreciate that the elimination of closure devices 36 from one or both tube ends 34 does not depart from the spirit of the present invention.

[0075] The following discussion refers to FIGs. 1 through 14.

[0076] Dendritic object 22 may be infested with vermin, pests, and/or parasites. Desirably, dendritic object 22 should be purged of such vermin, pests, and/or parasites prior to use.

[0077] Once dendritic object 22 has been completely enshrouded by containment system 20, regardless of the form of closure device 36 and/or the presence of end piece 56, dendritic object 22 may be purged of vermin, pests, and/or parasites by introducing a gaseous, liquid, or powdered toxic agent into containment system 20 through a small opening. Such a small opening need be no more than a crack between folds of containment tube 32. This methodology is especially effective with natural dendritic objects 22, such as cut-in-the-wild Christmas trees.

[0078] Alternatively, a liquid, powdered, or solid toxic agent may be enshrouded within containment system 20 along with dendritic object 22. This methodology is especially effective with artificial dendritic objects 22, such as artificial Christmas trees and wreaths, with are stored for long periods between uses. By enshrouding a toxic agent (e.g., mothballs or an activated flea collar) into containment system 20 along with dendritic object 22, an infestation of spiders, silverfish, mice, and/or other vermin may be curtailed.

[0079] Once dendritic object 22 has been completely enshrouded by containment system 20 (i.e., placed within containment tube 32 with both tube ends 34 closed), then dendritic object 22 is ready for transport, storage, and/or disposal. Depending upon the size and weight of dendritic object 22, an optional handle 76 (FIG. 1) may be affixed to outer surface 74 of containment tube 32.

[0080] In summary, the present invention teaches a containment system 20 for a dendritic object 22. During transport and handling, containment system 20 protects a transport vehicle from contamination by dendritic object 22, and protects dendritic object 22 from damage. Containment system 20 aids in the furling and unfurling of dendritic object 20 without

damage. Containment system 20 allows the ready destruction of parasites and other vermin harbored by dendritic object 22. Containment system 20 allows easy and inexpensive disposal of dendritic object 22.

[0081] Although the preferred embodiments of the invention have been illustrated and described in detail, it will be readily apparent to those skilled in the art that various modifications may be made therein without departing from the spirit of the invention or from the scope of the appended claims.